## CITS 2013 GENERAL CHAIR'S MESSAGE

Welcome to the 2013 International Conference on Computer, Information and Telecommunication Systems, CITS 2013. This year's conference marks the second CITS, which is being held on annual basis.

CITS 2013 offers a unique forum for researchers and practitioners from academia, industry, business, and government to share their expertise results and research findings in all areas of Computer, Information and Telecommunication Systems.

This year's conference includes an outstanding technical program, distinguished keynote speakers, and insightful tutorials. We have chosen the campus of the University of Piraeus, Piraeus-Athens, Greece. The site provides excellent meeting facilities and will be a comfortable setting for our conference.

The CITS 2013 technical program consists of several parallel tracks and will last for two days. We decided to run it for two days in order to cut on expenses. Each track consists of several sessions of top quality papers. The topics covered in the program include, among others, wireless networks, wireless sensor networks, computer networks and telecommunications, admission control in networking, parallel and distributed computing, databases and data mining, hardware/architecture/real-time systems, MIMO systems, modeling and simulation, performance evaluation, digital signal processing, image processing, pattern recognition, multimedia systems and video processing, character and pattern recognition, artificial intelligence, neural networks, fuzzy logic, genetic algorithms, learning automata, cloud computing, web systems, security and information assurance, cryptography, algorithms, biometrics, global navigation systems, e-services and e-business, and collaborative learning systems.

This year, we received a large number of high quality papers. Only high quality papers have been accepted. The acceptance ratio is about 43%. This is indicative of the diligent work of the technical program committee chairs, track chairs, technical program committee members and reviewers. The accepted papers come from all over the World with representation from academia, industry, business and government.

Many individuals have contributed to the success of this high caliber international conference. Our sincere appreciation goes to all authors including those whose papers were not included in the program. Many thanks are also due to our distinguished keynote speakers for their valuable contribution to the conference.

Special thanks are also due to the senior program chair, Prof. Isaac Woungang, for leading the technical program efforts. Thanks also are due to the other program chairs, namely Professors Malamati Louta, Hong Ji, and Charalambos Skiani. Many thanks also go to the technical program committee members and reviewers for their timely work and efforts.

Special thanks go to the publication chair, Prof. Daniel Cascado Caballero, for his outstanding work and dedication. Thanks to our dedicated webmasters Antonio Bueno and Aris Sako.

Special thanks go to the international publicity committee members especially, Dr. Essia Hamouda and Lei Shu.

We would like to also thank other members of the organizing committee, including the tutorials, the special sessions, and the workshops chairs as well as the various international liaisons. Special thanks are due to the international steering committee of the CITS.

We would like to thank the University of Piraeus for its generous support. Thanks are also due to the IEEE Communication Society, SCS and FTRA for their technical co-sponsorship of the conference.

Finally, on behalf of the 2013 IEEE International Conference on Computer, Information and Telecommunication Systems, CITS 2013, The Society for Modeling and Simulation International (SCS) and Future Technology Research Association (FTRA), we invite all of you to join us in Piraeus-Athens, Greece, at CITS 2013. Enjoy the program and your stay in the beautiful city of Piraeus-Athens.

**Mohammad S. Obaidat, George A. Tsihrintzis, and Maria Virvou**
**CITS 2013 General Chairs**

**Isaac Woungang,**
**CITS2013 Senior Program Chair**

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## PROGRAM AT A GLANCE

| Tuesday, May 7 | | Wednesday, May 8 | |
|---|---|---|---|
| 8:30 - 9:30 | Registration | 8:30 - 9:30 | Registration |
| 9:30 – 9:45 | Opening Session | 9:00 - 10:00 | **Keynote Speech 2** |
| 9:45 - 10:45 | **Keynote Speech 1** | 10:00 - 10:15 | Break |
| 10:45 - 12:15 | Computer Networks and Systems I<br>*Session Chair:*<br>*Maria Virvou* | 10:15 - 11:45 | Network and Telecommunication Systems<br>*Session Chair:*<br>*George Tsihrintzis* |
| 12:15 - 13:30 | Lunch | 11:45 - 13:00 | Lunch |
| 13:30 - 15:00 | Web Applications<br>*Session Chair:*<br>*Stamatis Theocharis* | 13:00 - 14:30 | Computer Systems and Software<br>*Session Chair:*<br>*Christos Troussas* |
| 15:00 - 15:30 | Break | 14:30 – 15:00 | Break |
| 15:30 - 17:00 | Computer Networks and Systems II<br>*Session Chair:*<br>*Efthimios Alepis* | 15:00 - 16:30 | Learning Systems and System Security<br>*Session Chair:*<br>*Dionyssios Sotiropoulos* |
| | | 16:30 – 17:00 | Closing Session |

## PROGRAM

### Opening Session

**Tuesday May 7, 9:30 - 9:45**

- Professor Mohammad S. Obaidat, General Chair of IEEE CITS 2012, Fellow of IEEE and\Fellow of SCS, Immediate Past President of the Society for Modeling and Simulation International (SCS), Professor of Computer Science and Software Engineering, Monmouth University, NJ, USA
- Professor George A. Tsihrintzis, University of Piraeus, Greece
- Professor Maria Virvou, University of Piraeus, Greece

Prof. M. S. Obaidat

Prof. G. A. Tsihrintzis

Prof. M. Virvou

## Keynote Speech 1
## Tuesday May 7, 9:45 - 10:45

***The Human Layer in Decision-Making in Networked Environments***
***Prof. Ioannis Stavrakakis. National and Kapodistrian University of Athens, Greece***

This talk will highlight how self-awareness and other human-related attributes impact on the networking landscape, regarding networked content management as well as resource selection in distributed collective awareness set ups. The first part will discuss issues and strategies that factor in behavioural aspects in classical networking problems, such as cooperative content caching/placement and forwarding. The second part will discuss the broad problem of resource selection/decision-making in competitive, distributed, networked environments that can lead to a "tragedy of the commons" effect. Emerging collective awareness/intelligence environments in smart cities (such as those implemented by mobile, smart-phone-carrying networked users) can on one hand facilitate resource discovery and, on the other hand, they create counter-productive congestion phenomena. The talk will explore decision-making in such environments, factoring in uncertainties and biases in (human-driven) decision making, also pointing to potential "less is more" phenomena.

**Short Bio:**

Professor Ioannis Stavrakakis (IEEE Fellow) (http://cgi.di.uoa.gr/~istavrak/) is Professor in the Department of Informatics and Telecommunications, in the National and Kapodistrian University of Athens. He received his Diploma in Electrical Engineering from the Aristotelian University of Thessaloniki and his Ph.D. in the same field from University of Virginia, USA. He served as Assistant Professor in CSEE, University of Vermont (USA), 1988-1994; Associate Professor of Electrical and Computer Engineering, in Northeastern University, Boston (USA), 1994-1999; Associate Professor of Informatics and Telecommunications, in the National and Kapodistrian University of Athens (Greece), 1999-2002; and as Professor since 2002. Teaching and research interests are focused on resource allocation protocols and traffic management for communication networks, with recent emphasis on: peer-to-peer, mobile, ad hoc, autonomic, delay tolerant and future Internet networking. His research has been published in over 210 scientific journals and conference proceedings and funded by NSF, DARPA, GTE, BBN and Motorola (USA) as well as Greek and European Union (IST, FET, FIRE) funding agencies. He has served repeatedly in NSF and EU-IST research proposal review panels and been involved in the TPC and organization of numerous conferences sponsored by IEEE, ACM, ITC and IFIP societies. He has served as chairman of IFIP WG6.3 and officer for IEEE Technical Committee on Computer Communications (TCCC). He is an associate editor for the Computer Communications journal and has served in the editorial board of the IEEE/ACM Transactions on Networking, ACM/Kluwer Wireless Networks and Computer Networks Journals. He has served as Head of the Communications and Signal Processing Division and Deputy Head of his Department. He is currently Head of his Department and Director of Graduate Studies.

**Keynote Speech 2**
**Wednesday May 8, 9:00 - 10:00**

***Affective Multi-Modal User Interfaces***
***Prof. Maria Virvou. Department of Informatics, University of Piraeus, Greece***

Affective features in user interfaces had been overlooked for many years in computer science until quite recently. As such, the research area of affective user interfaces is relatively new. Nevertheless, it has been explored with high intensity in the recent years. However, the area involves several problems that are not yet well understood and requires the combination of many up-to-date research advances in visual-facial processing, audio-lingual processing as well as cognitive reasoning, neural networks and other decision making mechanisms. This talk will focus on presenting approaches that combine different modalities in user interfaces such as keyboard, mouse, microphone, cameras, and animated agents in order to perform affect recognition and affect generation in a variety of multi-modal user interfaces ranging from virtual reality games to mobile educational applications. Reasoning mechanisms will be discussed and fusing approaches will be presented.

**Short Bio:**
Professor Maria Virvou (http://www.unipi.gr/faculty/mvirvou/) was born in Athens, Greece. She received a B.Sc. Degree in Mathematics from the University of Athens, Greece, a M.Sc. Degree in Computer Science from the University of London (University College London), U.K. and a Ph.D. Degree in Computer Science and Artificial Intelligence from the University of Sussex, U.K. She is a Full professor, Head of the Department and Director of Post-Graduate Studies
in the Department of Informatics, University of Piraeus, Greece. She is also Editor-in-Chief of the SpringerPlus Journal (Springer) for the whole area of Computer Science. Additionally, she is an Associate Editor of the Knowledge and Information Systems (KAIS) Journal (Springer) and Member of the Editorial Board of the International Journal on Computational Intelligence Studies (Inderscience). She has been Co-founder and General Co-Chair of the yearly conference series of KES-Intelligent Interactive Systems and Services, which aims at promoting research in the area of interactive multimedia and major applications such as e-learning and m-learning. She has been the General Chair/Program Chair of over twenty (20) International Conferences. For the year 2013, she is General Chair/Program Chair of five (5) international conferences. She has been the Principal investigator or Co-investigator of over 15 national/international research projects. She is the Director of a research lab. She has supervised 12 Ph.D. theses which have been completed successfully and she is currently supervising 6 Ph.D. students and 10 post-doctoral researchers. Moreover, she has supervised more than 100 M.Sc. theses in the area of Computer Science and 100 final year undergraduate dissertations. Her research interests are in the area of Computers and Education, Artificial Intelligence in Education, user and student modeling, e-Learning and m-Learning, Knowledge-Based Software Engineering and Human-Computer Interaction. Professor Virvou is the sole author of five (5) books in Computer Science and author/co-author of over 300 research papers published in international journals, books and conference proceedings. According to Microsoft Academic Search by Microsoft (http://academic.research.microsoft.com/ ), she is ranked in the top 100 authors in the broad area of Computer Education and the area of “User Interface” out of 58000 authors worldwide. According to the same academic search, she is ranked as the top first author in the area of “student model” and “authoring tools”. Additionally, she is ranked in the top ten authors in the area of “Intelligent Tutoring Systems” and “GUI (Graphical User Interface)” out of 28075 authors worldwide and she is ranked in

the top 100 in the recent area of emotion recognition. Her article "Combining software games with education: Evaluation of its educational effectiveness" Educational Technology & Society, Journal of International Forum of Educational Technology & Society and IEEE Learning Technology Task Force, 8 (2): 54-65 APR 2005 is included in the top ten full-length articles of the whole Journal. She was a co-recipient of the Best Applications paper award of the 29th Annual International Conference of the British Computer Society Specialist Group on Artificial Intelligence, Cambridge, UK, December 15-17, 2009.

## Schedule

### TUESDAY, MAY 7

8:30 - 9:30 Registration

99:30 – 9:45 Opening Session

9:45 - 10:45 **Keynote Speech 1**

Chair: Prof. Mohammad S. Obaidat (Monmouth University, NJ, USA)
The Human Layer in Decision-Making in Networked Environments
Prof. Ioannis Stavrakakis. National and Kapodistrian University of Athens, Greece

10:45 - 12:15 *Computer Networks and Systems I*
*Session Chair: Maria Virvou*

Enhanced Handover Architecture in IEEE 802.21-enabled Heterogeneous Wireless Networks
Nouri Omheni (University of Sfax, Canada); Faouzi Zarai (Sfax University, Tunisia); Mohammad S. Obaidat (Monmouth University, USA); Kuei-Fang Hsiao (Ming Chuan University, Taiwan); Lotfi Kamoun (LETI Laboratory University of Sfax Tunisia, Tunisia)

Secure Systolic Montgomery Modular Multiplier Resilient to Hardware Trojan and Fault-Injection Attacks
Qi Yang (School of Computer, Wuhan University, P.R. China); Zhongping Qin (Huazhong University of Science and Technology, P.R. China)

Learning Automata Based Sentiment Analysis for Recommender System on Cloud
Venkata Krishna (VIT University, India); Sudip Misra (Indian Institute of Technology-Kharagpur, India); Dheeraj Joshi (VIT University, India); Mohammad S. Obaidat (Monmouth University, USA)

A Joint Call Admission Control-Based Approach for Initial RAT Selection in HetNets
Glaucio Carvalho (Ryerson University, Canada); Isaac Woungang (Ryerson University, Canada); Alagan Anpalagan (Ryerson University, Canada); Mohammad S. Obaidat (Monmouth University, USA); Md Mizanur Rahman (Ryerson University, Canada)

12:15 - 13:30 Lunch

13:30 - 15:00 *Web Applications*
*Session Chair: Stamatis Theocharis*

Investigating the factors influencing users' continuance intentions towards online reservation
Samar Mouakket (University of Sharjah, UAE)

Mining relationships among user clusters in Facebook for language learning
Christos Troussas (University of Piraeus, Greece); Maria Virvou (University of Piraeus, Greece); Jaime DL Caro (Philippines, Philippines); Kurt Espinosa (University of the Philippines, Philippines)

Personalization as a means to improve e-services
Stamatios Theocharis (University of Piraeus, Greece); George Tsihrintzis (University of Piraeus, Greece)

A Computer-Supported Collaborative Learning Environment for Mathematics
Sotirios Christos Sidiropoulos (University of Piraeus, Greece); Maria Virvou (University of Piraeus, Greece)

15:00 - 15:30 Break

15:30 - 17:00 *Computer Networks and Systems II*
*Session Chair:Efthimios Alepis*

A Timed and Secured Monitoring Implementation Against Wormhole Attacks in AODV-Based Mobile Ad Hoc Networks
Isaac Woungang (Ryerson University, Canada); Sanjay Kumar Dhurandher (Netaji Subhas Institute of Technology, India); Mohammad S. Obaidat (Monmouth University, USA); Issa Traore (University of Victoria, Canada)

Multiplexing of GNSS Data for Differential Augmentation via Satellite IP Broadcast Links
Rafal Mielniczuk (AGH University of Science and Technology, Poland); Harald Gebhard (University of Applied Sciences, Konstanz, Germany); Zdzislaw Papir (AGH University of Science and Technology, Poland)

Secure and Integrated Handover Authentication Scheme with FMIPv6
Imen El bouabidi (University of Sfax, Tunisia); Faouzi Zarai (Sfax University, Tunisia); Mohammad S. Obaidat (Monmouth University, USA); Lotfi Kamoun (LETI Laboratory University of Sfax Tunisia, Tunisia)

Authorship Attribution of Ancient Texts Written by Ten Arabic Travelers Using Character N-Grams
Siham Ouamour (USTHB, Algeria); Halim Sayoud (USTHB, Algeria)

## WEDNESDAY, MAY 8

8:30 - 9:30 Registration

9:00 - 10:00 **Keynote Speech 2**

Chair: Prof. George A. Tsihrintzis (University of Piraeus, Greece)
Affective Multi-Modal User Interfaces
Prof. Maria Virvou. Department of Informatics, University of Piraeus, Greece

10:00 - 10:15 Break

10:15 - 11:45 *Network and Telecommunication Systems*
*Session Chair: George Tsihrintzis*

Merging and Incentive-based Techniques in Hybrid Clustering for Multi-Target Tracking in Wireless Sensor Networks
Faezeh Hajiaghajani (Michigan State University, USA); Marjan Naderan (Amirkabir University of Technology, Iran); Hossein Pedram (Amirkabir University of Technology, Iran); Mehdi Dehghan (Amirkabir University of Technology, Iran)

A Low-Complexity Rate-One MIMO Scheme with Four Transmit Antennas and Phase Feedback
Samuel Valduga (Federal University of Santa Maria, Brazil); Dimas Alves (Federal University of Santa Maria, Brazil); Renato Machado (Federal University of Santa Maria, Brazil); Andrei P Legg (Federal University of Santa Maria, Brazil); Murilo Bellezoni Loiola (Universidade Federal do ABC, Brazil)

Using efficiently autoregressive estimation in Wireless Sensor Networks
Karen Miranda (INRIA Lille - Nord Europe, France); Victor Ramos (Universidad Autonoma Metropolitana, Mexico); Tahiry Razafindralambo (INRIA Lille - Nord Europe, France)

Non-idealities compensation in full-digital receivers with application to Ultra-Wide Band
Angelo Coluccia (University of Salento, Italy); Vincenzo Chironi (University of Salento, Italy); Stefano D'Amico (University of Salento, Italy)

11:45 - 13:00 Lunch

13:00 - 14:30 *Computer Systems and Software*
*Session Chair: Christos Troussas*

A Context-Aware Backhaul Management Solution for combined H2H and M2M traffic
Prodromos Makris (University of the Aegean, Greece); Dimitrios N Skoutas (University of the Aegean, Greece); Nikolaos Nomikos (University of the Aegean, Greece); Demosthenes Vouyioukas (University of the Aegean, Greece); Harry Skianis (University of the Aegean, Greece)

System Level Design of Scalable Encryption Algorithm by Using CoWare
Abidin Altintas (Istanbul Technical University, Turkey); Berna Ors (Istanbul Technical University, Turkey)

A Novel Single-mode, Linearly Polarized, Erbium-doped Fiber Laser with a Stabilized Frequency
Yuanyue Guo (University of Science and Technology of China, P.R. China); Dongjin Wang (University of Science and Technology of China, P.R. China)

A UML-Based Environment for Test Scenarios in Mobile Settings
Pierre Andre (LAAS-CNRS, France); Helene Waeselynck (LAAS-CNRS, France); Nicolas Riviere (LAAS-CNRS, France)

14:30 – 15:00 Break

15:00 - 16:30 *Learning Systems and System Security*
*Session Chair: Dionyssios Sotiropoulos*

Authorship Verification for Short Messages using Stylometry
Marcelo Luiz Brocardo (University of Victoria, Canada); Issa Traore (University of Victoria, Canada); Sherif Saad (University of Victoria, Canada); Isaac Woungang (Ryerson University, Canada)

Multifactorial user classification in a multilingual mobile-assisted language learning system
Christos Troussas (University of Piraeus, Greece); Maria Virvou (University of Piraeus, Greece); Efthimios Alepis (University of Piraeus, Greece)

Simple arithmetic lessons through an adaptive snake game
Maria Virvou (University of Piraeus, Greece); Spyros Papadimitriou (University of Piraeus, Greece)

16:30 – 17:00 Closing Session